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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,474	01/29/2004	Steven T. Fink	071469-0307596 (PC0155A)	3726
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Andrej Mitrovic Suite 10 4350 W. Chandler Blvd. Chandler, AZ 85226			EXAMINER LAFOND, RONALD D	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 11/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/766,474

Applicant(s)

FINK, STEVEN T.

Examiner

Ronald D. Lafond

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9 and 11-31 is/are pending in the application.
- 4a) Of the above claim(s) 13-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Amendments of September 12, 2007, were received and have been entered. Claims 1, 5, and 8 are acknowledged as amended, while Claims 3, 4, and 10 are acknowledged as cancelled. This action is in response to amended Claims 1, 2, 5 – 9, 11, and 12, which are still pending.

2. Claims 13 – 31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 15, 2007.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 2, 5 – 9, 11, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, Applicant has amended Claim 1 to read "wherein the chemistries of the first and second plasmas are substantially the same." However, there is no support for this limitation in the Specification as originally filed. The Specification teaches, in Paragraph [0013], that the film of material that is coated onto the surface of the parts to be disposed and reassembled in the reaction chamber is "substantially similar to the substrate material that is exposed to plasma during a plasma process." No where in the Specification is a comparison of the chemistries of the plasmas discussed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious

Art Unit: 1792

at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5 – 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda, et al (United States Patent Application Publication US 2002/0005252 A1, hereafter Masuda) in view of Williams, et al (United States Patent 5,647,953, hereafter Williams), and further in view of Wong, et al (United States Patent 5,522,932, hereafter Wong).

7. Regarding Claim 1, Masuda teaches a method for manufacturing a substrate with a plasma processing system, the method comprising: disposing a substrate on a chuck in a first plasma processing chamber; and forming a first plasma in a processing region within the first plasma processing chamber (see Paragraph [0057] of Masuda).

8. Masuda does not teach the steps of the method comprising: obtaining a component of a plasma processing system which has been coated with a film of material; disposing said component in a first plasma processing chamber; wherein the film of material has been coated using a second plasma in a second plasma processing chamber different from said first plasma processing chamber; and wherein the chemistries of the first and second plasmas are substantially the same.

9. However, Masuda does teach that it is advantageous to perform an in situ pre-seasoning/pre-coating process to prevent corrosion of the interior surface of the apparatus from the plasma etchants (see Paragraph [0032], "According to the present invention, a part of processing gas is polymerized by plasma discharge and a surface coating layer is formed by polymer on the part of the inner wall of the processing chamber which is in contact with plasma or the surface of the part ... Therefore the inner wall surface will not be etched and consumed by plasma, so that the frequency of part exchange of the inner wall surface can be reduced and the running cost can be decreased") before the substrate processing. Williams teaches the method wherein the film of pre-seasoning/pre-coating material has been coated using a plasma, and wherein the chemistries of the plasmas used for deposition of the pre-seasoning/pre-coating film and for processing of the substrate are substantially the same (see Column 5, lines 55 – 67, and Column 6, lines 1 – 5, wherein SiO_x plasma coatings are used for both the substrate coating and the pre-seasoning coating). Therefore, it would have been obvious to one having ordinary skill in the art at the

Art Unit: 1792

time of the present invention to have modified the method taught by Masuda by coating the film of pre-seasoning/pre-coating material using a plasma and wherein the chemistries of the pre-seasoning/pre-coating plasma and the substrate processing plasma are substantially the same, because Williams teaches that such methods are known in the art.

10. Furthermore, Wong teaches the method comprising obtaining a component of a plasma processing system which has been coated with a film of material and disposing said component in a first plasma processing chamber (see Column 6, lines 19 – 33). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the method taught by Masuda in view of Williams by plasma coating the plasma processing apparatus parts in a second plasma processing chamber different from said first plasma processing chamber and then reassembling them inside the chamber as taught by Wong (instead of performing an in situ coating step within the chamber as taught by Masuda) with a reasonable expectation of success, because both references teach performing a pre-coating process on apparatus parts that have surfaces exposed to plasma during processing to prevent corrosion.

11. Regarding Claim 2, Wong inherently teaches the method wherein the obtaining includes obtaining a component from one of a component manufacturer and plasma processing chamber manufacturer, as all such components must come from such a manufacturer.

12. Regarding Claim 5, Masuda in view of Williams and Wong does not explicitly teach the method wherein the second plasma processing chamber used to coat the component is similar to the first plasma processing chamber where the substrate is disposed. However, as discussed, Wong teaches that corrosion-resistant coatings on the surfaces of plasma apparatus parts exposed to plasma need not be applied in situ, and may, in fact, be successfully applied in a different apparatus. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the method taught by Masuda in view of Williams and Wong by performing the pre-coating method taught by Masuda, Williams, and Wong on apparatus parts in a different chamber similar to the first chamber (e.g., either of the chambers taught by Masuda or Williams) and then disposing of and reassembling them back in the original chamber before substrate processing as taught by Wong with a reasonable expectation of

Art Unit: 1792

success, because both Masuda and Williams teach the use of apparatuses that may be used to plasma coat substrates.

13. Regarding Claims 6 – 8, Masuda inherently teaches the method wherein the film material, film thickness, and film uniformity are determined by a customer specification, as the film deposited must necessarily be of a specification desired by the customer or user.

14. Regarding Claim 9, Williams teaches that the silica film has a thickness of 0.2 – 2 microns (see Column 4, lines 49 – 51 of Williams).

15. Regarding Claim 11, Masuda teaches the method, further comprising pumping excess gas through a pump opening arranged in the plasma processing chamber (see Paragraph [0057]).

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda in view of Williams and Wong, and further in view of Shan, et al (United States Patent 5,605,637, hereafter Shan).

17. Masuda in view of Williams and Wong does not teach the method wherein: the obtaining includes obtaining a pumping deposition shield that has been coated with a film of material; and the component disposing includes disposing said pumping deposition shield in the pump opening. As discussed, Masuda in view of Williams and Wong teaches that it is advantageous to apply a pre-coating to components and surfaces of the plasma processing apparatus which come into contact with the plasma during processing. Masuda in view of Wong further teaches that it is possible to coat the individual components in a separate processing chamber before reinstalling them back in the chamber to used for substrate processing instead of performing an in site chamber pre-coating process. Shan teaches, in Column 2, lines 27 – 38, that it is advantageous to use a pumping deposition shield “to prevent the plasma from reaching a portion of the reactor chamber.” Shan further teaches, in Column 6, lines 14 – 22, that “the invention provides a simple yet highly effective technique for reducing dc bias in a plasma etch reactor to a predicted lower level than would be obtained without use of the invention. Thus, higher etch rates can be maintained without the wafer damage and other processing difficulties that ensue from use of a dc bias that is too high.” It would have been obvious to one having ordinary skill in the art to have modified the method taught by Masuda in view of Wong by including a pump deposition shield in the plasma processing apparatus to have obtained the advantages taught by Williams. Furthermore, because one surface of the

Art Unit: 1792

pumping deposition shield is in fluid contact with the plasma (see Figure 1 of Wong), and the pumping deposition shield functions to prevent plasma from entering the outlet ports for evacuating gases from the chamber, it would have been obvious to one having ordinary skill in the art to have coated the pumping deposition shield taught by Williams with a film of material as taught by Masuda and Wong to have obtained the advantages disclosed by Masuda and Wong, i.e. to prevent corrosion of the pumping deposition shield.

Response to Arguments

18. Applicant's arguments filed September 12, 2007, have been fully considered but they are not persuasive.

19. Because Claim 3 was canceled, the rejection to Claim 3 under 35 U.S.C. 112, Second Paragraph, has been withdrawn.

20. Applicant argues, on Pages 6 and 7, that Masuda and Wong do not teach all of the limitations of Claim 1 as currently amended. Because Claim 1 as currently amended essentially includes all of the limitations of the now-canceled Claim 3, the rejection of Claim 1 under Masuda in view of Wong is no longer applicable, but Claim 1 is now rejected under Masuda in view of Williams and Wong (see above).

Applicant also argues, on Page 7, that there is no teaching, suggestion, or motivation to combine Masuda and Wong. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Wong specifically teaches the concept of coating individual parts outside of the chamber in which they are to be used (i.e., an ex situ coating process) and then disposing and re-assembling the coated parts back in the original chamber. Applicant focuses on the rhodium coatings taught by Wong as being incompatible with the plasma chemistries used in substrate processing. However, this is not persuasive, as Wong teaches the concept

Art Unit: 1792

of coating apparatus parts ex situ and then reassembling them; the type of coatings taught by Wong are essentially immaterial, as Masuda and Williams teach all of the further limitations of Claim 1.

21. Because Claim 4 was canceled, the rejection to Claim 4 under 35 U.S.C. 103(a) over Masuda in view of Wong has been withdrawn.

22. Regarding the rejections to Claims 2, 5, 6, 7, and 8 under 35 U.S.C. 103(a) over Masuda in view of Wong, these rejections have been withdrawn and instead are now rejected under 35 U.S.C. 103(a) over Masuda in view of Williams and Wong (see above).

23. Because Claims 3 and 10 were canceled, the rejections to these Claims under 35 U.S.C. 103(a) over Masuda in view of Wong and Williams have been withdrawn.

24. Regarding the rejection to Claim 9 under 35 U.S.C. 103(a) over Masuda in view of Wong and Williams, Applicant argues that Claim 9 patentably defines over Masuda in view of Wong, and that Williams does not cure any of the deficiencies of the combined Masuda and Wong references as related to either Claims 1 or 9. These arguments are not persuasive; see rejection of Claim 1 above.

25. Finally, Applicant argues that Masuda in view of Wong and further in view of Shan is improper because Shan does not explicitly teach the exact pumping deposition shield Claimed by Applicant, and that the pumping shield taught by Shan actually corresponds to the baffle plate of the present Application. This argument is not persuasive. Shan teaches, in Column 2, lines 37 – 39, that “a plasma shield [is] installed in the reactor chamber to prevent the plasma from reaching a portion of the reactor chamber.” Applicant defines, in Paragraph [0016] of the Specification, “the pumping deposition shield can, for example, confine the plasma to the processing space within chamber, and reduce the extent to which plasma infiltrates the pumping system.” That is, Shan is teaching the use of the same type of part that Applicant defines as a pumping deposition shield. Shan’s part performs the function Applicant attributes to a “pumping deposition shield”; therefore, it is as pumping deposition shield.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D. Lafond whose telephone number is (571) 270-1878. The examiner can normally be reached on M - F, 9:30 AM - 6 PM.

Art Unit: 1792

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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